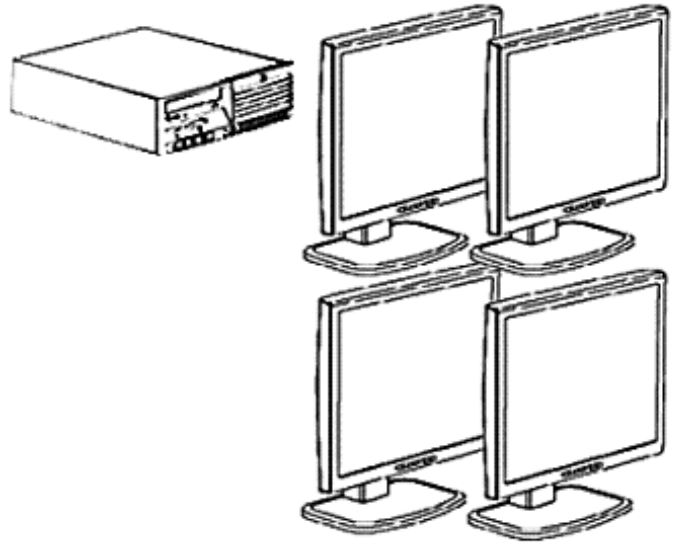


Overview

HP recommends Windows
Vista™ Business



42U Rack with 48 HP ProLiant xw25p Blade Workstations



One HP Blade Client with multiple monitors

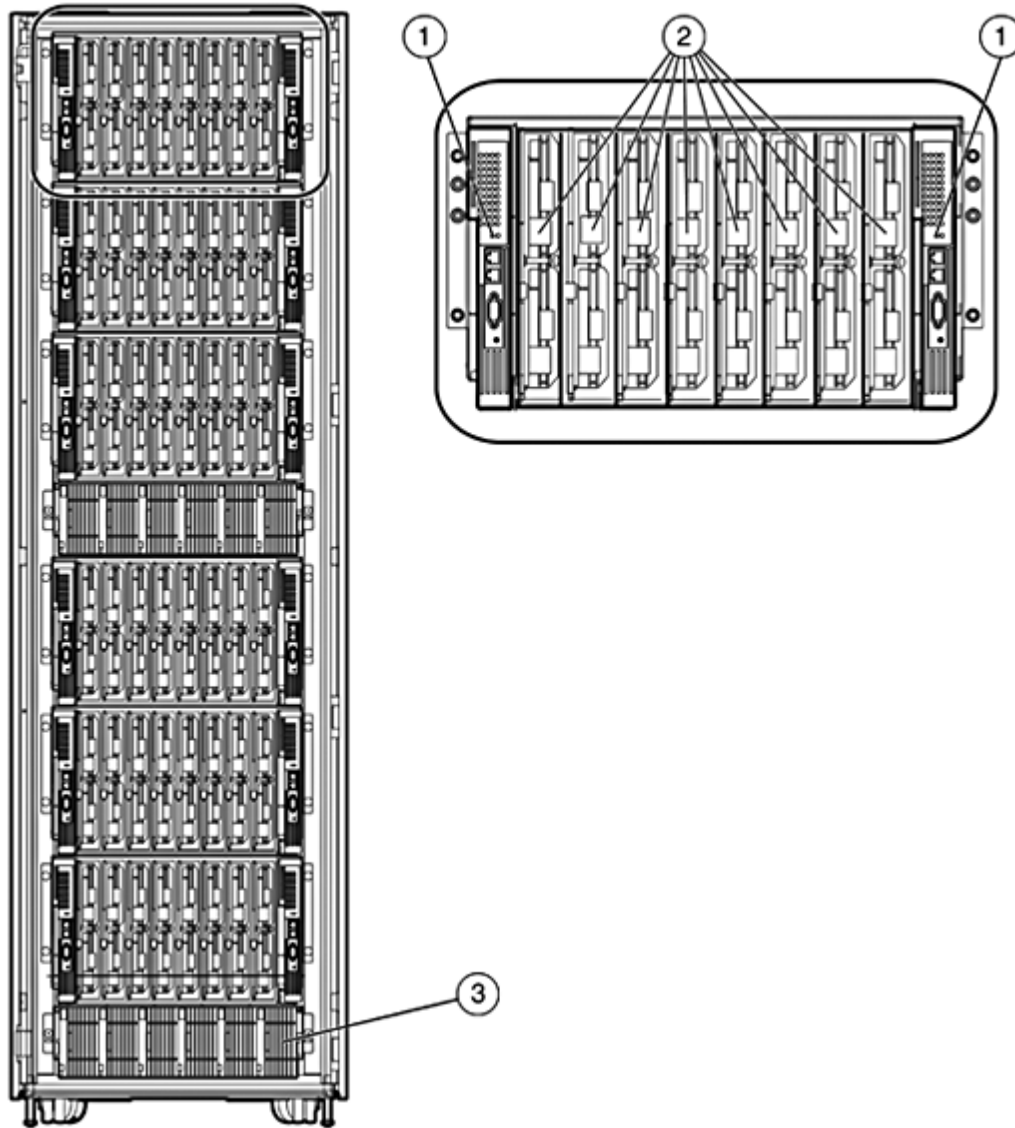
Each HP ProLiant xw25p Blade Workstation handles Office tasks, compute-intensive multitasking, roaming profile, graphical output and fast working profile restores to the HP Blade Workstation Client

At A Glance

- For HP ProLiant xw25p Blade Workstation quickspecs, see pages xx - xx
- For HP Blade Workstation client quickspecs, see pages xx - xx

Overview

HP ProLiant xw25p Blade Workstation



42U Rack with HP ProLiant xw25p Blade Workstation System Installed

1. BL p-Class interconnects (2) in HP BladeSystem p-Class blade enclosure (interconnect switch shown)
2. HP ProLiant xw25p blades (8) in HP BladeSystem p-Class blade enclosure
3. HP BladeSystem p-Class 3U power enclosure with hot-plug power supplies (6)

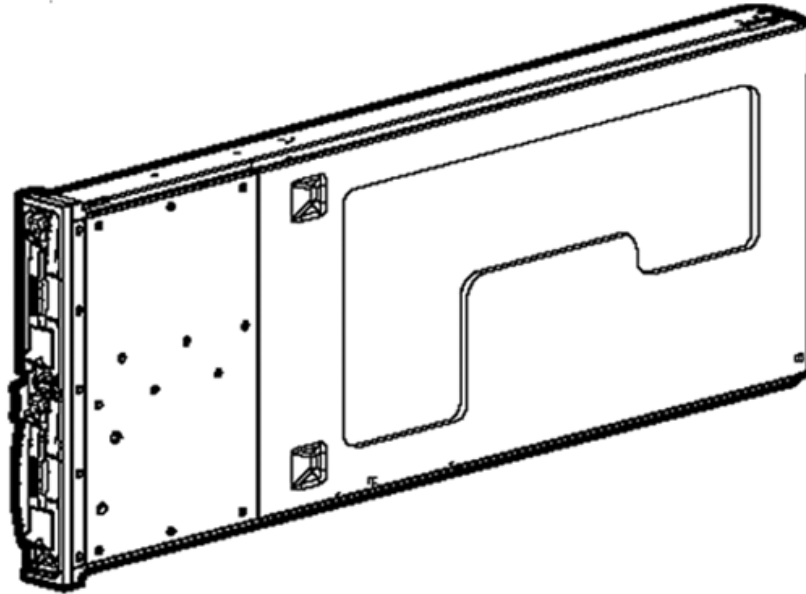
Overview

At A Glance

- Performance dual processor blade workstations designed with enterprise availability
 - HP ProLiant xw25p Blade Workstation includes:
 - Dual AMD Opteron 2.6 GHz - 1 MB L2 cache
 - AMD 8131 and 8111 Chipsets
 - 1024 MB or 2048 MB PC3200 Registered ECC 400MHz DDR memory, (2 x 1 Interleaved Memory), expandable to 16 GB
 - One dual port Broadcom 5704 Gigabit NIC embedded with WOL and PXE
 - One additional 10/100 NIC dedicated to iLO Management
 - Smart Array 6i (integrated on system board Controller with optional battery-backed write cache)
 - Wide Ultra3 SCSI Drive Cage standard supports up to two 1" Wide Ultra3 hot plug hard drives
 - Integrated Lights-Out (iLO) Advanced Management (ASIC on motherboard)
 - Plugs vertically into 6U enclosure
 - I/O cable with 2 USB ports, 1 video port, one iLO port and kernel debug port. The I/O cable attaches to the front of the blade workstation. The cable was specifically designed to aid in initial image deployment.
 - Cisco Gigabit Ethernet Switch Module (CGESM) option for Gigabit Ethernet network adapter consolidation.
 - Integrated Access Tool for blade management and enhanced blade documentation including Best Practices and Common Procedures guides
 - **HP BladeSystem blade enclosure:**
 - Server blades and interconnects blind mate into blade enclosures for network connection and power
 - Server blade enclosure is 6U and holds up to 8 HP ProLiant xw25p Blade Workstations and 2 interconnects
 - Types of interconnects available: GbE Interconnect Switches, Patch Panels
 - **HP BladeSystem Power Enclosures:**
 - Use BL p-Class sizing tool to determine power based on your configuration
<http://h30099.www3.hp.com/configurator/calc/Power%20Calculator%20Catalog.xls>.
 - BL p-Class power enclosure provides shared, external, redundant power
 - Choose the HP BladeSystem p-Class 3U power enclosure or the HP BladeSystem p-Class 1U power enclosure
 - Choose single-phase or three-phase power
 - HP BladeSystem power enclosures with power supplies are not needed if using facility -48VDC $\pm$ 10%, in this case purchase facility DC option kit
 - **HP BladeSystem p-Class Power Distribution (only required with the 3U power enclosure):**
 - Distributes power from the power enclosure to the blade enclosures
 - Four power distribution choices:
 - BL p-Class scalable bus bar
 - BL p-Class mini bus bar
 - BL p-Class power bus box
 - Dual power input kit for mini bus bar (required for support of two power enclosures)
 - HP ProLiant xw25p Blade Workstation, and p-Class blade enclosure, interconnects and power enclosure protected by a limited three year warranty with optional service uplifts available
- NOTE:** Power requirements for a HP BladeSystem p-Class: 200V - 240V AC, 30 amp or facility DC -48V $\pm$ 10%.

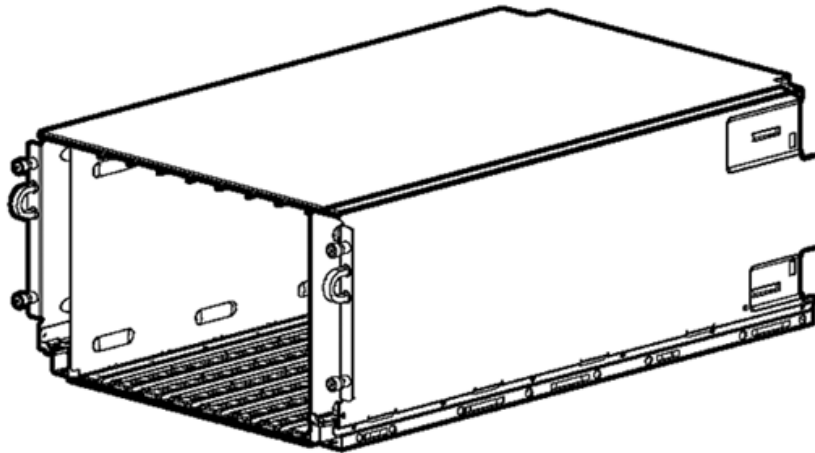
Overview

HP ProLiant xw25p Blade Workstation



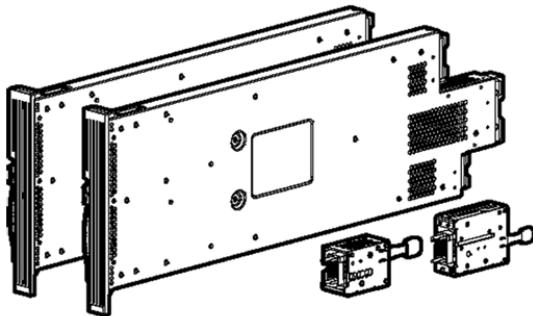
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HP BladeSystem p-Class blade enclosure



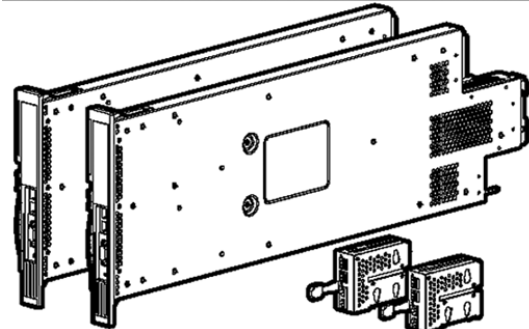
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BL p-Class Interconnects



Patch Panel (shown) or
Patch Panel 2

+



GbE Interconnect Switch (shown) or
GbE2 Interconnect Switch or
CGESM Interconnect Switch (fiber or copper-based)

Overview

+

BL p-Class power enclosures and power supplies



or

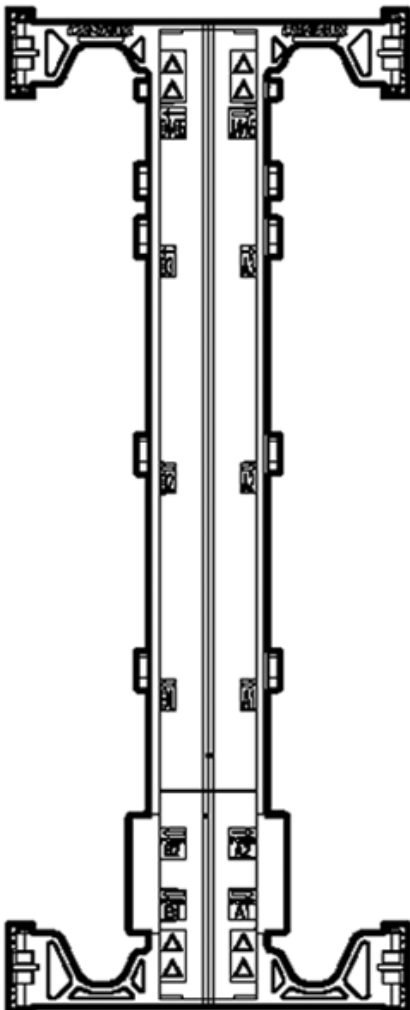
HP BladeSystem p-Class 1U power enclosure and power supplies



or

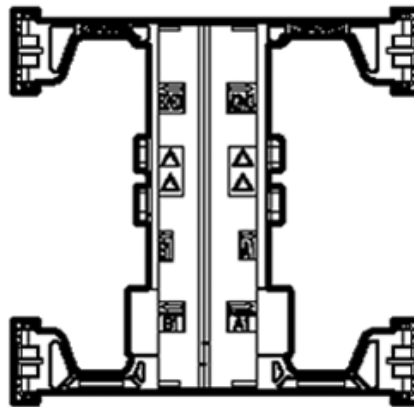
Facility DC

HP BladeSystem p-Class power distribution (only required with the 3U power enclosure)



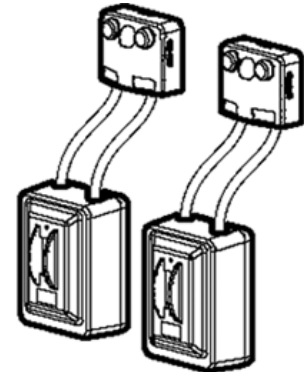
Scalable bus bar

or

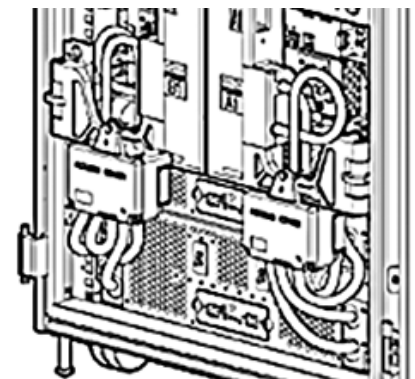


Mini bus bar

or



Bus boxes



Dual power input kit for mini bus bar

Overview

Configuration Steps

- For a complete configuration of the HP ProLiant xw25p Blade Workstation, do the following:
- Select desired model, configuration and quantity of HP ProLiant xw25p blade workstations.

PLUS

- Decide how many HP BladeSystem p-Class blade enclosures to purchase (each enclosure can hold up to 8 HP ProLiant xw25p blade workstations):
 HP BladeSystem p-Class blade enclosure with 8 Rapid Deployment Pack licenses (281404-B21)
 Or
 HP BladeSystem p-Class blade enclosure with Rapid Deployment Pack trial (243564-B21)
 Or
 HP BladeSystem p-Class blade enclosure with enhanced backplane components with 8 Rapid Deployment Pack licenses (281404-B22)
 Or
 HP BladeSystem p-Class blade enclosure with enhanced backplane components with 8 Rapid Deployment Pack trial (243564-B22)
 Or
 HP BladeSystem p-Class blade enclosure with enhanced backplane components with 8 HP BladeSystem Management Suite licenses (380625-B22) - includes: a single copy of Systems Insight Manager (SIM) and 8 licenses for each of the following products: Rapid Deployment Pack (RDP), Performance Management Pack (PMP) and the Vulnerability and Patch Management Pack (VPM)
NOTE: The HP xw25p Blade Workstation does not currently support PMP. Future support is planned.
 Or
 HP BladeSystem p-Class blade enclosure Upgrade Kit (option)(354100-B21)
NOTE: blade enclosure Upgrade Kit (354100-B21) contains enhanced backplane components and enables a field upgrade of a blade enclosure to support BL p-class blades and provide a single, physical iLO port for the enclosure.

PLUS

- Select an Interconnect Kit. Each Interconnect Kit contains a pair of interconnects except the Cisco GESM which contains a single Switch per kit. One pair of interconnects is required with each blade enclosure:
 Or
 RJ-45 Patch Panel (230766-B21)
 Or
 Quantity (2) Cisco Gigabit Switch Module for HP BladeSystem p-Class Interconnect Kit (with 16 10/100/1000 T/TX/T downlink ports, 2 RJ-45 10/100/1000 T/TX/T uplink ports, and 4 SFP ports) (378926-B21), with or without any combination of up to 4 10/100/1000 T/TX/T RJ-45 SFP Module (378928-B21)
 Or
 Quantity (2) Cisco Gigabit Switch Module for HP BladeSystem p-Class Interconnect Kit (with 16 10/100/1000 T/TX/T downlink ports, 2 RJ-45 10/100/1000 T/TX/T uplink ports, and 4 SFP ports populated with 2 10/100/1000 T/TX/T SFP modules) (378927-B21)
 Or
 BL p-Class C GBE2 Interconnect Kit (with 16 10/100/1000 T/TX/T downlink ports, 6 RJ-45 10/100/1000 T/TX/T uplink ports) (283192-B21)
 Or
 BL p-Class F GBE2 Interconnect (with 16 10/100/1000 T/TX/T downlink ports, 4 LC 1000 SX and 2 RJ-45 10/100/1000 T/TX/T uplink ports) (283193-B21)
 Or
 BL p-Class C GBE Interconnect Kit (with 4 RJ-45 10/100/1000 T/TX/T uplink ports and 16 RJ-45 10/100 T/TX downlink ports (249655-B21)
 Or
 BL p-Class F GBE Interconnect Kit (with 4 LC 1000 SX uplink ports and 16 RJ-45 10/100 T/TX downlink ports) (279720-B21)

Overview

PLUS

4. Select a HP BladeSystem p-Class power enclosure and power supplies based on configuration. Use p-Class sizing tool to help determine power configuration:
<http://h30099.www3.hp.com/configurator/calc/Power%20Calculator%20Catalog.xls>.
NOTE: Power enclosures and supplies are not needed if using facility DC (-48V ± 10%).
Single phase 3U power enclosure with four power supplies (Single-phase 3U power enclosure holds a max of four power supplies) (NA/JPN- 239162-001) (INTL - 239162-421)
Or
Three-phase 3U power enclosure with six power supplies (Three-phase 3U power enclosure holds a max of six power supplies) (NA/JPN- 230769-001) (INTL - 230769-421)
NOTE: 3U Power enclosures and supplies can also be purchased separately see options list
Or
1U power enclosure with six power supplies (378284-B21)
Or
1U power enclosure with two power supplies (380314-B21)
NOTE: Additional power supplies can also be purchased separately - see options list below.

PLUS

5. Select power distribution (only required with 3U power enclosures):
Scalable bus bar - Supports up to 5 blade enclosures* (240560-B21)
Or
Mini bus bar - Supports up to 3 blade enclosures* (240559-B21)
Or
Power Bus Box - Supports only 1 blade enclosure* (240562-B21)
Dual Power Input Kit for Mini Bus Bar - required for support of two power enclosures. (364565-B21)
Or
HP Modular Distribution Unit 40 Amp (NA/JPN) (P/N 252663-D75)**
Or
HP Modular Distribution Unit 40 Amp (Int'l) (P/N 252663-B34)**
Or
HP Modular Distribution Unit 32 Amp (Int'l) (P/N 252662-B33)**
Or
HP Modular Distribution Unit 24 Amp (NA/JPN) (P/N 252663-D74)**
***NOTE:** Maximum depends upon power input
****NOTE:** The Modular Distribution Unit Kits excludes the extension bars as they are not required with the HP BladeSystem p-class 1U power enclosure.

Standard Features (HP ProLiant xw25p Blade Workstation)

Processor	Dual AMD Opteron Model 252 processor 2.6 GHz/1 GHz - 1MB	
Cache Memory	1 MB Level 2 Cache	
Chipset	AMD 8131 and 8111 chipsets	
Memory	Standard	2048 MB or 4096 MB of 2-way interleaved PC3200 DDR SDRAM running at 400MHz (depending on model)
	Maximum	16 GB
	NOTE: Memory must be installed in pairs.	
Network Adapter	Three network adapters total: One dual port Broadcom 5704 Gigabit NIC embedded with WOL and PXE One 10/100 iLO NIC dedicated to management	
Manageability	Integrated Lights-Out (iLO) Management Advanced (ASIC on the System Board)	
Internal Storage	Maximum	600 GB (internal drive cage) (2 x 300 GB Wide Ultra320, 1" drive)
Expansion Slots	No PCI slots all features are integrated I/O cable connectors: (2)USB ports, (1) video port, (1) iLO port and (1) kernel debug port Connects to the front of the server blade for aid in 1st server blade deployment and troubleshooting Tested USB devices (keyboard, mouse, floppy) are listed in the "Options" section of this QuickSpecs Diagnostic Cable Connectors: (1) iLO port and (1) kernel debug port (2) I/O cables ship with every blade enclosure Connects to the front of the blade for aid in troubleshooting Graphics: Internal NVIDIA MXM-II Quad display PCIe x16 graphics accelerator	

Standard Features (blade enclosure and interconnects)

HP BladeSystem p-Class blade enclosures and ProLiant BL p-Class Interconnects

HP BladeSystem p-Class blade enclosures	6U (10.5-inch), 19-inch wide Holds up to 8 HP ProLiant xw25p Blade Workstations 10 bays per blade enclosure 8 bays for blades 2 outside bays for interconnect modules (RJ-45 Patch Panel, RJ-45 Patch Panel 2, GbE Interconnect Switch, GbE2 Interconnect Switch or CGESM Interconnect Switch) Blades blind mate into the blade enclosure backplane for power and data connections NOTE: Blade Enclosure Upgrade Kit (354100-B21) contains enhanced backplane components and enables a field upgrade of a blade enclosure to support specific HP ProLiant xw25p blade workstation models and provide a single, physical iLO port for the enclosure. Blade management module attached to the back of each HP BladeSystem p-Class 6U blade enclosure to report events all blades and provide asset and inventory information
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HP BladeSystem p-Class Power Requirements	Redundant 200V - 240V AC, 30 amp single-phase for NA and International Redundant 208V 30amp 3-phase 4 wire, NA Redundant 380 - 415V 20A 3-phase 5 wire, Intl Redundant -48VDC $\pm$ 10%
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ProLiant BL p-Class Interconnect Switch Option (Every HP BladeSystem p-Class blade enclosure requires two interconnect switches OR two RJ-45 patch panels)	Provides up to a 32 to 1 networking cable reduction per enclosure. Each interconnect switch (two per enclosure) reduces up to sixteen internal blade network (NIC) ports to six external ports (four on a modular rear mounting interconnect module and two on the switch front panel). This provides a total of twelve external ports per blade enclosure. Only one to all twelve external ports may be used per blade enclosure. The Cisco Gigabit Ethernet Switch Module (CGESM) Interconnect Kits are for applications that require network adapter consolidation to 1000 Mbps (Gigabit Ethernet) in a Cisco infrastructure. - The Cisco Gigabit Ethernet Switch Module Interconnect kit includes one CGESM Interconnect Switch or one CGESM with four (4) RJ-45 10/100/1000 T/TX/T Small Form Factor Pluggable (SFP) Modules - Quantity 2 Cisco Gigabit Ethernet Switch Module Interconnect kits provide two CGESM Interconnect Switches providing any combination of up to twelve (12) RJ-45 10/100/1000 T/TX/T or Fiber SX external ports per blade enclosure. The GbE2 Interconnect Kits (C GBE2 and F GBE2) are for applications that require network adapter consolidation to 1000 Mbps (Gigabit Ethernet). - The ProLiant BL p-Class F GBE2 Interconnect Kit includes two GbE2 Interconnect Switches and two QuadSX Interconnect Modules that provide eight (8) LC 1000 SX and four (4) RJ-45 10/100/1000 T/TX/T external ports per blade enclosure. - The ProLiant BL p-Class C GBE2 Interconnect Kit includes two GbE2 Interconnect Switches and two QuadT2 Interconnect Modules that provide twelve (12) RJ-45 10/100/1000 T/TX/T external ports per blade enclosure.
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Standard Features (*blade enclosure and interconnects*)

The GbE Interconnect Kits (C GBE and F GBE) are for applications that require network adapter consolidation to 100 Mbps (Fast Ethernet).

- The ProLiant BL p-Class F GBE Interconnect Kit includes two GbE Interconnect Switches and two DualTSX Interconnect Modules that provide four (4) LC 1000 SX and eight (8) RJ-45 10/100 T/TX external ports per blade enclosure.
- The ProLiant BL p-Class C GBE Interconnect Kit includes two GbE Interconnect Switches and two QuadT Interconnect Modules that provide four (4) RJ-45 10/100/1000 T/TX/T and eight (8) RJ-45 10/100 T/TX external ports per blade enclosure.

Also included (per Interconnect Switch):

- One (1) RS-232 DB-9 front panel out-of-band management port
- Redundant crosslink ports connecting the two interconnect switches
- Redundant power inputs and on-board redundant fans
- Hot-plug and hot- remove with configuration retention and no need to cable/re-cable
- Power ON, management, and per port status and speed LED indicators
- Reset/power momentary push-button switch
- HP ProLiant BL Interconnect Switch Management Utilities and User Documentation CD
- Fully pre-configured for rapid deployment and immediate operation

The GbE Interconnect Kits (C GBE and F GBE) are for applications that require network adapter consolidation to 100 Mbps (Fast Ethernet).

- The ProLiant BL p-Class F GBE Interconnect Kit includes two GbE Interconnect Switches and two DualTSX Interconnect Modules that provide four (4) LC 1000 SX and eight (8) RJ-45 10/100 T/TX external ports per blade enclosure.
- The ProLiant BL p-Class C GBE Interconnect Kit includes two GbE Interconnect Switches and two QuadT Interconnect Modules that provide four (4) RJ-45 10/100/1000 T/TX/T and eight (8) RJ-45 10/100 T/TX external ports per blade enclosure.

ProLiant BL Interconnect Switch Management System and Utilities:

Full featured web-based and scriptable command line (CLI) interfaces, password protected multi-level user accounts, Telnet, SNMP, BootP client, port mirroring, port-based VLANs and VLAN tagging, EtherChannel compatible multi-port trunking, network time protocol, spanning tree protocol, broadcast/multicast storm control, flow control, human readable/writeable configuration file, TFTP client, IP address security restrictions, auto-MDI/MDIX, auto-negotiation and auto-sensing of speed and duplex mode, and more.

ProLiant BL p-Class RJ-45 Patch Panel

(Two patch panels per kit) (Every BL p-Class blade enclosure requires two Interconnect switches OR two RJ-45 patch panels)

6U (10.5-inch), Plugs into HP BladeSystem p-Class 6U blade enclosures

Used to pass NIC signals from all blade workstations in blade enclosure out as RJ-45 connections

Supports Gigabit Ethernet network adapters

16 RJ-45 connectors on the back of each BL p-Class 6U RJ-45 Patch Panel (32 RJ-45 connections per blade enclosure)

Standard Features (blade enclosure and interconnects)

Required Network Cabling	10Base-T	Categories 3, 4 or 5 UTP (100 meters) EIA/TIA-568 100-ohm STP (100 meters)
	100Base-TX	Category 5 UTP (100 meters) EIA/TIA-568 100-ohm STP (100 meters)
	1000Base-T	Category 5 UTP (100 meters) EIA/TIA-568 100-ohm STP (100 meters)
	1000Base-SX	50/125 µm Multimode Fiber, 400 MHz/Km (500 meters) 50/125 µm Multimode Fiber, 500 MHz/Km (550 meters) 62.5/125 µm Multimode Fiber, 160 MHz/Km (220 meters) 62.5/125 µm Multimode Fiber, 200 MHz/Km (275 meters)

NOTE: For cabling information, refer to the Web site at:
<http://www.compaq.com/products/servers>.

Standard Features (Power System and Rack Information)

HP BladeSystem p-Class Power System and Rack Information

NOTE: To determine power configuration please refer to the HP BladeSystem p-Class Overview and Planning Whitepaper and sizing tool at <http://h18000.www1.hp.com/products/servers/proliant-bl/p-class/20p/index.html>.

HP BladeSystem p-Class 3U Power Enclosure

3U (5.25-inch), 19-inch wide, 29-inch deep (0.48-meter wide, 0.74-meter deep), Dual input single phase and three phase models available.

HP BladeSystem p-Class 3U power enclosure provides external, shared hot-plug power. Each three-phase power enclosure houses up to six hot-plug power supplies each single-phase power enclosures hold up to four hot-plug power supplies to power the xw Blade Workstations and interconnects

Please use the sizing utility to determine the power needed for each configuration
<http://www.hp.com/go/bladesystem/powercalculator>.

NOTE: Power enclosures and power supplies are not needed if using facility DC (-48V DC $\pm$ 10%). If using facility DC, only Facility DC Power Connection kit part number (240563-B21) is needed.

HP BladeSystem p-Class 1U Power Enclosure

1U (1.75-inch), 19-inch wide, 29-inch deep (0.48-meter wide, 0.74-meter deep), Multi-input single phase or three phase operation.

HP BladeSystem p-Class 1U power enclosure provides external, hot-plug power. Each 1U power enclosure houses up to six hot-plug power supplies to power up to one Blade Workstation enclosure, fully populated with xw Blade Workstations and interconnects.

Please use the sizing utility to determine the power needed for each configuration
<http://www.hp.com/go/bladesystem/powercalculator>.

NOTE: Power enclosures and power supplies are not needed if using facility DC (-48V DC $\pm$ 10%). If using facility DC, only Facility DC Power Connection kit part number (240563-B21) is needed.

HP BladeSystem p-Class Power Distribution

(only required with 3U power enclosures)

In the HP BladeSystem p-Class infrastructure, redundant -48 VDC power (from the power enclosures or facility DC power) is distributed from the power enclosures to the blade enclosures through the bus bar system. Hinges attach the HP BladeSystem bus bars to the rails in a rack. The bus bars swing open from the center to enable easy rear access to the blade workstations and network cables. Power is distributed redundantly through independent A- and B-sided bus bars.

Three different power distribution solutions are available depending on the maximum number of blade enclosures planned for the rack:

- HP BladeSystem p-Class scalable bus bar
- HP BladeSystem p-Class mini bus bar
- HP BladeSystem p-Class power bus box

NOTE: To support a full 42U rack of HP ProLiant xw25p Blade Workstations (6 blade enclosures), two mini bus bars are needed.

Standard Features (Power System and Rack Information)

	Power Enclosures Supported	blade enclosures Supported	Max. Rack Space Occupied
Scalable Bus Bar	1 or 2	up to 5	36U
Mini Bus Bar	1 or 2	up to 3	21U
Power Bus Box	1	1	9U

Dual power input kit for mini bus bar option (364565-B21) required to support two power enclosures.

NOTE: To support a full 42U rack of xw Blade Workstations, use two stacked pairs of mini bus bars.

Required Power Source	Two 30amp redundant power feeds per power enclosure Connectors -NEMA receptacles (NA/Japan) NA 1-phase L6-30, 250v, 30A 3-wire NA 3-phase L15-30, 250V, 30A, 4-wire -IEC 309 Pin & Sleeve connectors (International) Intl 1-phase 250V, 32A, 3- pin (2 pole + ground) Intl 3-phase 380-415V, 32A, 5--pin (4 pole + ground) Optimized for power cabling from bottom and network cabling from top
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Standard Features (HP ProLiant xw25p Blade Workstation)

ProLiant Essentials Foundation Pack Software for ProLiant Blades

ProLiant Essentials Rapid Deployment Pack

Rapid Deployment Pack (RDP) is an automated deployment and provisioning solution for all blades. RDP includes the Altiris Deployment Solution. Every RDP CD includes 10-node trial licenses for evaluation purposes. RDP requires a license for each blade deployed and is available for purchase with blades. For more information, visit <http://www.hp.com/servers/rdp>.

HP Systems Insight Manager

HP Systems Insight Manager (HP SIM) help maximize system uptime and performance and reduce system maintenance costs by providing proactive notification of problems before those problems result in unplanned downtime or reduced productivity. HP SIM is easy to set up to work with the Insight Management Agents, integrated Light-Out and Remote Insight Light-Out Edition, and Version Control Agents to deliver robust fault, configuration, and asset management as well as remote administration. With HP Systems Insight Manager customers will also be able to take advantage of role-based security; the ability to manage ProLiant, Integrity, and HP9000 systems; and plug-ins for storage, client, printer, and power management as well as blade rapid deployment, performance management, and workload management. For more details on HP Systems Insight Manager visit <http://www.hp.com/go/hpsim>.

Management Agents

The Management Agents form the foundation for HP's Intelligent Manageability strategy. They provide direct, browser-based access to in-depth instrumentation built into HP Blade Workstations and clients, and send alerts to HP Systems Insight Manager and other enterprise management applications in case of subsystem or environmental failures. For additional information about the Management Agents and other management products from HP, please visit the management Web site at <http://www.hp.com/servers/manage>.

Subscriber's Choice

Subscriber's Choice Driver and Support Alerts/Notifications is a web-based email subscription service that provides software and driver change notifications for HP products. Sign up at <http://www.hp.com/go/subscriberschoice> and customize your profile to receive various new alerts as they become available, on a weekly or monthly basis.

ROMPaq, support software, and configuration utilities Insight Diagnostics Offline Edition

The latest software, drivers, and firmware fully optimized and tested for your workstation blade and options is downloadable from Software and Drivers download pages, linked from <http://www.hp.com/go/support>.

The most advanced configuration analysis, reporting and troubleshooting utilities used by HP and at your fingertips, available in documentation and diagnostics CD that ships with the system.

OS Support

Microsoft® Windows® XP Professional Blade PC Edition

NOTE: For a more complete and up-to-date listing of supported OSs and versions, please visit our OS Support Matrix at: <http://www.hp.com/go/supportos>.

NOTE: For an up-to-date listing of the latest drivers available for the ProLiant BL p-Class, please see: <http://www.compaq.com/support/files/server/us/index.html>.

Standard Features (HP ProLiant xw25p Blade Workstation)

Intelligent Manageability

Integrated Lights-Out Advanced (iLO)
Graphical Remote Console *
Virtual CD-ROM*
Virtual Floppy *
Virtual Power Button Control
Dedicated LAN Connectivity
Automatic IP Configuration via DHCP/DNS/WINS
Industry Standard 128-bit Secure Sockets Layer (SSL) Security
IML and iLO Event Logging
Support for 12 user accounts with customizable access privileges
HP Systems Insight Manager
Redundant ROM
Remote Flash ROM
Redundant Power Supply Utility
Advanced Configuration and Power Interface (ACPI) compliant, does not support sleep states S1 and S3
Integrated Management Log (IML)
Network adapter teaming set-up utility

***NOTE:** Advanced features such as Graphical Remote Console and Virtual Floppy are included with the blade.

Availability

Power redundancy: Redundant AC feeds into power enclosures, redundant DC feeds from power enclosure to blade enclosures,
N + N redundant power supplies
Two hot-plug SCSI hard drive bays and integrated RAID (Smart Array 5i Plus) on every blade (Battery-backed write cache is optional.)
Redundant ROM on each blade
ECC Memory
Network adapter teaming (network fault tolerance, transmit load balancing, switch-assisted load balancing)
Interconnects Switch Availability

- Hot-plug and hot- remove with configuration retention and no need to cable/re-cable
- Two network connections per blade bay (four NICs total) routed to two redundant interconnect switches
- Redundant Ethernet inter-switch communication with two sets of redundant Ethernet uplink ports per each interconnect switch
- Redundant front panel ports per each interconnect switch for diagnostics, management, and additional uplinks
- Redundant serial ports
- Compatibility with PVST+ (CGESM or GbE2 switch) and 802.1D Spanning tree protocol support for loop-free path redundancy
- Static IEEE 802.3ad (EtherChannel compatible) trunking with automatic port load balancing and failover
- Redundant configuration files and operating system firmware images in memory (GbE2 switch)
- Redundant fans per each interconnect switch
- Redundant 1+1 power to each interconnect switch
- Support for ProLiant network adapter teaming
- Redundant configurable community strings and SNMP trap manager hosts
- Redundant configurable syslog server, DNS server, and default gateways (GbE2 switch)

Standard Features (HP ProLiant xw25p Blade Workstation)

Security

Power-on password
Administrator's password
Integrated Lights-Out has 12 customizable user accounts and SSL encryption
Integrated Lights-Out can be disabled via a Global Setting
Interconnect switch multilevel user names and passwords, management interface time out period setting, SSH*, SCP secure copy protocol*, port-based IEEE 802.1Q tagged VLANs, RADIUS user authentication and authorization*, and IP address restriction

***NOTE:** CGESM and GbE2 Interconnect Switch only

Minimum Rack Requirements

Mounts in ProLiant, and Telco racks and Third Party racks that meet the following criteria:

- Compatible with 19-inch Standard EIA rail sets
- EIA rail-to-rail depth is 29 - 30"
- Cabinet depth must be at least 36-inch deep overall (Additional min. 3.5-inch clearance from rear RETMA rail to rear door, inclusive in the 36-inch overall depth)
- Ample room for top and bottom cable egress (approximately 8 square inches for full rack configuration with patch panel)
- Must be capable of supporting 1600 lb (for full rack configuration)
- Perforated front and rear doors to accommodate front-to-back cooling
- Must have 65% open perforation on blade enclosure doors to support airflow requirements
- Optimized for use with the HP 10000 Series racks

NOTE: If using Compaq 7000 Series rack, Rack Extension Kit and High Air Flow Rack Door options are required.

Rack Airflow Requirements

Rack 10000 series Cabinets

The increasing power of new high-performance processor technology requires increased cooling efficiency for rack-mounted blades. The 10000 Series Racks provide enhanced airflow for maximum cooling, allowing these racks to be fully loaded with blades using the latest processors.

CAUTION: If a third-party rack is used, observe the following additional requirements to ensure adequate airflow and to prevent damage to the equipment:

- **Front and rear doors:** If your 42U rack includes closing front and rear doors, you must allow 830 square inches (5,350 sq cm) of hole evenly distributed from top to bottom to permit adequate airflow (equivalent to the required 64 percent open area for ventilation).
- **Side:** The clearance between the installed rack component and the side panels of the rack must be a minimum of 2.75 inches (7 cm).

CAUTION: Always use blanking panels to fill all remaining empty front panel U-spaces in the rack. This arrangement ensures proper airflow. Using a rack without blanking panels results in improper cooling that can lead to thermal damage.

NOTE: For additional information, refer to the Setup and Installation Guide or the Documentation CD provided with the blade, or to the blade documentation located in the Support section at the following URL: <http://www.hp.com/servers/bl25p>.

Standard Features (HP ProLiant xw25p Blade Workstation)

Service and Support Three-year limited warranty, including hardware diagnostic support, pre-failure warranty (coverage of hard drives, memory and processors). The warranty is fully supported by HP Services and a worldwide network of resellers and service providers. In addition 90-day's getting started software telephone support may be covered under the warranty or available for an additional fee. Enhancements to warranty services are available through HP Care Pack services.

NOTE: Workstation Blade Limited Warranty includes 3 year Parts, 3 year Labor, 3-year on-site support.

NOTE: Blade Enclosure and Interconnects Limited Warranty is for 1 year Parts, 1 year Labor, 1-year on-site support

Care Pack services provide a range of life cycle support options that let you choose the service levels that meet your business requirements, from basic to mission-critical.

A full range of HP Care Pack hardware and software services are available including:

- Installation and start up (availability TBC)
- Education courses
- Extended onsite hardware coverage hours from same business day, 9 hours, 5 days a week
- Comprehensive range of software technical support for Microsoft Windows XP -based IT solutions helping to deliver high level of application availability. Response times range from 30 mins for critical problems to 2 hours.
- System Management, Performance Services and Mission Critical Support Solution

NOTE: Support information for the Blade Workstation is available at the following web page:

<http://www.hp.com/support/xw25p>

NOTE: Support information for the Blade Client is available at the following web page:

<http://www.hp.com/support/BWClient>

Configuration Information Factory Integrated Models (North America& EMEA)

ProLiant xw25p Blade Workstation 2.6 GHz-1 MB, 4 GB (2P), 146 GB 390294-B21	Processor(s)	(1) AMD Opteron Model 252 2.6 GHz standard (up to 2 supported)
	Cache Memory	1 MB Level 2 writeback per processor
	Memory	4 GB (Standard) to 16 GB (Maximum) of 2-way interleaved capable PC3200 DDR SDRAM running at 400MHz (4x 1 GB)
	Network Adapter	Two Gigabit NICs (embedded) with WOL and PXE One additional 10/100 NIC dedicated to iLO Management
	Storage Controller	Smart Array 6i Controller (integrated on system board)
	Hard Drives	146 GB Ultra320 SCSI 10K RPM
	Internal Storage	Up to 2 Ultra320 SCSI drives
	Optical Drive	None
	Form Factor	Plugs vertically into HP BladeSystem p-Class blade enclosure

ProLiant xw25p Blade Workstation 2.6Ghz-1MB, 2GB (2P), 72 GB 390293-B21	Processor(s)	(1) AMD Opteron Model 252 2.6 GHz standard (up to 2 supported)
	Cache Memory	1 MB Level 2 writeback per processor
	Memory	2 GB (Standard) to 16 GB (Maximum) of 2-way interleaved capable PC3200 DDR SDRAM running at 400MHz (4x512 MB)
	Network Adapter	Two Gigabit NICs (embedded) with WOL and PXE One additional 10/100 NIC dedicated to iLO Management
	Storage Controller	Smart Array 6i Controller (integrated on system board)
	Hard Drives	72 GB Ultra320 SCSI 10K RPM disk
	Internal Storage	Up to 2 Ultra320 SCSI drives
	Optical Drive	None
	Form Factor	Plugs vertically into HP BladeSystem p-Class blade enclosure

Options

ProLiant Essentials Value Pack Software	Rapid Deployment Pack, 10 User, V1.x	269817-B21
	NOTE: This license allows 10 blades to be managed and deployed via the Deployment Server.	
	NOTE: Not necessary if you purchase the blade enclosure with 8 Rapid Deployment Pack licenses 281404-B21.	
	NOTE: Rapid Deployment pack is now available in Linux only environments.	
	Rapid Deployment Pack, 10 User, V1.x (Japan)	269817-291
	NOTE: This license allows 10 blades to be managed and deployed via the Deployment Server.	
	NOTE: Not necessary if you purchase the blade enclosure with 8 Rapid Deployment Pack licenses 281404-B21.	
	NOTE: Rapid Deployment pack is now available in Linux only environments.	
	Rapid Deployment Pack, 1 User, V1.x	267196-B21
	NOTE: This license allows 1 blade to be managed and deployed via the Deployment Server.	
Memory (SDRAM DIMMs)	NOTE: Not necessary if you purchase the blade enclosure with 8 Rapid Deployment Pack licenses 281404-B21.	
	NOTE: Rapid Deployment pack is now available in Linux only environments.	
	Rapid Deployment Pack, 1 User, V1.x (Japan)	267196-291
	NOTE: This license allows 1 blade to be managed and deployed via the Deployment Server.	
	NOTE: Not necessary if you purchase the blade enclosure with 8 Rapid Deployment Pack licenses 281404-B21.	
	NOTE: Rapid Deployment pack is now available in Linux only environments.	
	Flexible Quantity License Kit	302127-B21
	License-Only - for use with a Master License Agreement	302128-B21
	4GB of Advanced ECC PC3200 DDR-400 SDRAM DIMM Memory Kit (2 x 2 GB)	379300-B21
	2GB of Advanced ECC PC3200 DDR-400 SDRAM DIMM Memory Kit (2 x 1 GB)	376639-B21
Hard Drives	1GB of Advanced ECC PC3200 DDR-400 SDRAM DIMM Memory Kit (2 x 512 MB)	376638-B21
	Ultra320 SCSI - Universal Hot Plug	
	300 GB 10,000 rpm U320 Universal Hard Drive (1")	350964-B22
	146.8 GB 10,000 rpm U320 Universal Hard Drive (1")	286716-B22
	72.8 GB 10,000 rpm U320 Universal Hard Drive (1")	286714-B22
	72.8 GB 15,000 rpm U320 Universal Hard Drive (1")	286778-B22
	146.8 GB 15,000 rpm U320 Universal Hard Drive (1")	347708-B22
	36.4 GB 15,000 rpm U320 Universal Hard Drive (1")	286776-B22

Options

HP BladeSystem p-Class blade enclosures	HP BladeSystem p-Class blade enclosure with enhanced backplane components and the HP BladeSystem Management Suite NOTE: Includes a HP BladeSystem p-Class blade enclosure with enhanced backplane components, a single copy of Systems Insight Manager (SIM) and 8 licenses for each of the following products: Rapid Deployment Pack (RDP), Performance Management Pack (PMP) and the Vulnerability and Patch Management Pack (VPM). NOTE: The HP ProLiant xw25p Blade Workstation does not currently support PMP. Future support is planned.	380625-B22
	HP BladeSystem p-Class blade enclosure (ProLiant Essentials Rapid Deployment Pack Trial)	243564-B21
	HP BladeSystem p-Class blade enclosure (8 ProLiant Essentials Rapid Deployment Pack Licenses)	281404-B21
	HP BladeSystem p-Class blade enclosure with enhanced backplane components (ProLiant Essentials Rapid Deployment Pack Trial)	243564-B22
	HP BladeSystem p-Class blade enclosure with enhanced backplane components (8 ProLiant Essentials Rapid Deployment Licenses) NOTE: HP BladeSystem p-Class Enhanced blade enclosures with enhanced backplane components may be required depending on which HP ProLiant xw25p Blade Workstation model is selected. For additional information regarding blade enclosure Compatibility, please visit the following URL: http://www.hp.com/go/bladeSystem/enclosure/compatibility	281404-B22
	HP BladeSystem p-Class blade enclosure Upgrade Kit (option) NOTE: blade enclosure Upgrade Kit (354100-B21) contains enhanced backplane components and enables a field upgrade of a blade enclosure to support BL p-class blades and provide a single, physical iLO port for the enclosure.	354100-B21
HP BladeSystem p-Class Interconnects	ProLiant BL p-Class RJ-45 Patch Panel 2 with Fibre pass-through (pair) (required for FC connectivity) NOTE: Only one interconnect kit required per blade enclosure.	306465-B21
	ProLiant BL p-Class RJ-45 Patch Panel (pair) NOTE: Only one interconnect kit required per blade enclosure.	230766-B21
	ProLiant BL p-Class C GbE2 Interconnect Kit (with pair of GbE2 Interconnect Switches and two QuadT2 Interconnect Modules) NOTE: Only one interconnect kit required per blade enclosure.	283192-B21
	ProLiant BL p-Class F GbE2 Interconnect Kit (with pair of GbE2 Interconnect Switches and two QuadSX Interconnect Modules) NOTE: Only one interconnect kit required per blade enclosure.	283193-B21
	Cisco Gigabit Ethernet Switch Module for HP BladeSystem p-Class Interconnect Kit Base Unit only NOTE: Two CGESM interconnect kits required per blade enclosure.	378926-B21
	Cisco Gigabit Ethernet Switch Module for HP BladeSystem p-Class Interconnect Kit Base Unit (populated with two RJ-45 10/100/1000 T/TX/T Small Form Factor Pluggable (SFP) Modules) NOTE: Two CGESM interconnect kits required per blade enclosure.	378927-B21
	Cisco RJ-45 10/100/1000 T/TX/T SFP Module	378928-B21

Options

ProLiant BL p-Class C GbE Interconnect Kit (with pair of GbE Interconnect Switches and two QuadT Interconnect Modules) 249655-B21

NOTE: Only one interconnect kit required per blade enclosure.

NOTE: The GbE Interconnect Switch supports blade NIC speeds to 100 Mbps. It is recommended that a patch panel or GbE2 Interconnect Switch option be used if blade NIC speeds to 1000 Mbps are required.

NOTE: To meet applicable radio frequency (RF) emission limits, the sidewall panels on the ends of any individual rack or a series of coupled racks and the front and rear doors must be installed in any racks containing more than one ProLiant BL p-Class GbE Interconnect Kit.

ProLiant BL p-Class F GbE Interconnect Kit (with pair of GbE Interconnect Switches and two DualTSX Interconnect Modules) 279720-B21

NOTE: Only one interconnect kit required per blade enclosure.

NOTE: The GbE Interconnect Switch supports NIC speeds to 100 Mbps. It is recommended that a patch panel option be used if blade NIC speeds to 1000 Mbps are required.

NOTE: To meet applicable radio frequency (RF) emission limits, the sidewall panels on the ends of any individual rack or a series of coupled racks and the front and rear doors must be installed in any racks containing more than one ProLiant BL p-Class GbE Interconnect Kit.

HP BladeSystem p-Class Interconnects

NOTE: Use p-Class sizing tool to help determine power configuration:

<http://h30099.www3.hp.com/configurator/powercalcs.asp>

Single Phase 3U Power Enclosure with 4 power supplies (NA/JPN) 239162-001
(Single Phase 3U Power Enclosure holds a maximum of 4 power supplies; no need to order additional power supplies with this option kit)

Single Phase 3U Power Enclosure with 4 power supplies (Int'l) 239162-421
(Single Phase 3U Power Enclosure holds a maximum of 4 power supplies; no need to order additional power supplies with this option kit)

3 Phase 3U Power Enclosure with 6 power supplies (NA/JPN) 230769-001
(3 Phase 3U Power Enclosure holds a maximum of 6 power supplies; no need to order additional power supplies with this option kit)

3 Phase 3U Power Enclosure with 6 power supplies (Int'l) 230769-421
(3 Phase 3U Power Enclosure holds a maximum of 6 power supplies; no need to order additional power supplies with this option kit)

Single 3U Phase Power Enclosure (empty) (NA/JPN) 231710-001
(Holds up to 4 power supplies; power supplies are not included in this kit)

Single 3U Phase Power Enclosure (empty) (Int'l) 231710-421
(Holds up to 4 power supplies; power supplies are not included in this kit)

3 Phase 3U Power Enclosure (empty) (NA/JPN) 231709-001
(Holds up to 6 power supplies; power supplies are not included in this kit)

3 Phase 3U Power Enclosure (empty) (Int'l) 231709-421
(Holds up to 6 power supplies; power supplies are not included in this kit)

Single 3U Power Supply 239161-B21

1U Power Enclosure with six power supplies 378284-B21

1U Power Enclosure with two power supplies 380314-B21

Single 1U Power Supply 380312-B21

Facility DC Power Connection 240563-B21

Options

Power Distribution (only required with 3U power enclosures)	HP BladeSystem p-Class Scalable Bus Bar	240560-B21
	HP BladeSystem p-Class Mini Bus Bar	240559-B21
	HP BladeSystem p-Class Bus Power Box	240562-B21
	Dual Power Input Kit for Mini Bus Bar	364565-B21
	HP Modular Distribution Unit 40 Amp (NA/JPN)	252663-D75
	HP Modular Distribution Unit 40 Amp (Int'l)	252663-B34
	HP Modular Distribution Unit 32 Amp (Int'l)	252662-B33
	HP Modular Distribution Unit 24 Amp (NA/JPN)	252663-D74
	NOTE: The Modular Distribution Unit Kits excludes the extension bars as they are not required with the HP BladeSystem p-class 1U power enclosure.	
	HP BladeSystem Power Extension Kit	381686-B21
NOTE: This kit is specifically for HP BladeSystem p-Class customers who want to upgrade their standard blade enclosures to enhanced blade enclosures and would like to install an additional, redundant 3U power enclosure above the blade enclosures rather than below them. The option kit consists of two extension cable assemblies - one for each side (A and B).		
Other Options	HP BladeSystem p-Class Diagnostic Station	230743-B21
	NOTE: The Diagnostic Station allows access to the blade and the BL p-Class interconnect switch outside of the enclosure. The option provides power and a data interface so that "offline" upgrade and diagnostic functions may be performed.	
	HP BladeSystem p-Class Power Enclosure Shipping Bracket Option Kit	365044-B21
NOTE: Used to secure one power enclosure in a rack when moving		
USB Options	USB 1.44 MB External Diskette Drive (Carbonite)	DC141B
	USB Easy Access Keyboard	267146-XX8
	USB Easy Access Keyboard (Carbonite)	DC168B#
	USB 2-Button Optical Mouse (Carbonite)	DC172B
	USB Optical Scroll Mouse (Carbonite)	DD441B
	256MB HP Drive Key II (USB 2.0)	PH657A

Options

USB Easy Access Keyboard (Carbonite/Silver) Country Key Code

Dash #	Description	Dash#	Description
A2M	ICELAND	ABT	HE
AB0	TAWA	ABU	UK
AB1	KOR	ABV	ARA
AB2	PRC	ABX	FIN
AB6	FRA	ABY	DEN
AB7	GRK	ABZ	ITL
AB8	TURK	AC0	BEL
AB9	PORT	AC4	BRZ
ABA	US	ACB	RUSS
ABB	EURO	AKB	CZE
ABC	FCAN	AKC	HUNG
ABD	GR	AKD	POL
ABE	SP	AKL	THAI
ABF	FR	AKN	BHCSY
ABH	NL	AKR	SLOV
ABJ	Japan	ARK	ICELAND
ABM	LA	B15	KAZ
ABN	NOR	UUZ	SWISS
ABS	SW		

HP Rack 5000 Series (Graphite Metallic)	HP 5642 Rack - Unassembled	358254-B21
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Rack Options for Rack 5000 Series	Stabilizer Kit for 5642 Rack (Graphite Carbon)	374493-B21
	NOTE: The stabilizing kit is used to prevent rack from tipping over.	
	Baying Kit for 5642 Rack (Graphite Carbon)	374499-B21
	NOTE: The baying kit is used to join two or more HP 5642 racks.	

Rack 10000 Series (Graphite Metallic)	Rack, HP Infrastructure 42U (HV)	379005-001
	Rack, HP Infrastructure 42U (LV)	379006-001
	HP Rack 10842 (42U) - Pallet	257415-B21
	HP Rack 10842 (42U) - Shock Pallet	257415-B22
	HP S10614 (14U) Rack Cabinet - Shock Pallet	292302-B22
	HP Rack 10647 (47U) Cabinet - Pallet	245160-B21
	HP Rack 10647 (47U) Cabinet - Crated	245160-B23
	HP Rack 10642 (42U) Cabinet - Pallet	245161-B21
	HP Rack 10642 (42U) Cabinet - Shock Pallet	245161-B22
	HP Rack 10642 (42U) Cabinet - Crated	245161-B23
	HP Rack 10636 (36U) Cabinet - Pallet	245162-B21
	HP Rack 10636 (36U) Cabinet - Shock Pallet	245162-B22
	HP Rack 10636 (36U) Cabinet - Crate	245162-B23
	HP Rack 10622 (22U) Cabinet - Pallet	245163-B21
	HP Rack 10622 (22U) Cabinet - Shock Pallet	245163-B22

Options

HP Rack 10622 (22U) Cabinet - Crated

245163-B23

NOTE: -B21 (pallet) used to ship empty racks shipped on a truck
-B22 (shock pallet) used to ship racks with equipment installed (by custom systems, VARs and Channels)
-B23 (crated) used for air shipments of empty racks

Not all HP equipment is qualified to be shipped in the Rack 10000 series.

NOTE: Please see the Rack 10000 QuickSpecs for Technical Specifications such as height, width, depth, weight, and color:

http://h18000.www1.hp.com/products/quickspecs/10995_div/10995_div.HTML
(Worldwide)

http://h18000.www1.hp.com/products/quickspecs/10995_na/10995_na.HTML
(North America)

NOTE: For additional information regarding Rack Cabinets, please see the following URL:

<http://h18000.www1.hp.com/products/servers/proliantstorage/rack-options/index.html>

Rack Options for HP Rack 10000 Series

HP Light kit for 10000 series rack

361589-B21

HP Plinth kit for 10000 series rack

251960-B21

42U Side Panel - Graphite Metallic

246099-B21

36U Side Panel - Graphite Metallic

246102-B21

47U Side Panel - Graphite Metallic

255486-B21

NOTE: For additional information regarding Rack Options, please see the following URL:

<http://h18000.www1.hp.com/products/servers/proliantstorage/rack-options/index.html>.

TFT5600 Rack Keyboard Monitor

221546-xx1

TFT7210R Rack Mounted 17" Monitor

348373-B21

NOTE: For a complete list of Monitors please view the following URL:

<http://h18004.www1.hp.com/products/monitors/>

1U Rack Keyboard & Drawer (Carbon)

257054-xx1

Country Code Key (for 1U Rack Keyboard & Drawer (PN 257054-xx1))

XX = 001	US	XX = 091	Norway
XX = 031	UK	XX = 101	Sweden/Finland
XX = 041	Germany	XX = 111	Switzerland
XX = 051	France	XX = 131	Portugal
XX = 061	Italy	XX = 181	Belgium
XX = 071	Spain	XX = 291	Japan
XX = 081	Denmark	XX = B31	International

NOTE: For additional information regarding Rack Options, please see the following URL:

<http://h18000.www1.hp.com/products/servers/proliantstorage/rack-options/index.html>.

Options

HP KVM Switch Options	IP Console Switch Box (KVM/IP), 1 x 1 x 16	262585-B21
	IP Console Switch Box (KVM/IP) , 3 x 1 x 16	262586-B21
	Serial Interface adapter - 1 Pack with power supply	373035-B21
	Interface adapter - USB 1.0 (single pack)	336047-B21
	CAT5e Cable 3', 4 pack	263474-B21
	CAT5e Cable 6', 8 pack	263474-B22
	CAT5e Cable 12', 8 pack	263474-B23
	CAT5e Cable 20', 4 pack	263474-B24
	CAT5e Cable 40', 1 pack	263474-B25
	NOTE: For additional information regarding HP KVM Switches and options, please see the following URL: http://h18004.www1.hp.com/products/servers/proliantstorage/rack-options/list.html/#console	

Rack Options for Telco Racks	ProLiant BL p-Class Bus Bar Telco Rack Kit	245249-B21
	ProLiant BL p-Class Enclosure Telco Rack Kit	266076-B21

Service and Support Offerings

(HP Care Pack Services)

Optional Care Pack Hardware Services On-site Service				
Object of service	Care Pack	Description	Duration	Response time
Client Desktop	U4863E	HP 3y 4h 9x5 Desktop only Hardware Support	3 Years	4 Hours
Blade Workstation	U4873E	HP 3y 4h 9x5 Workstation only Hardware Support	3 Years	4 Hours
Mandatory Software Operating Environment Care Packs				
Care Pack	Description	Duration	Response Time	
UC271E	HP 3y 9x5 Blade WS Software Tech Supp	3 Years	2 Hours	

Memory

HP ProLiant xw25p Blade Workstation (390293-B21)

Standard Memory

2 GB PC3200 Registered DDR SDRAM DIMM installed (4 x 512MB SDRAM DIMM)

Standard Memory Plus Optional Memory

Up to 10 GB of DDR SDRAM DIMM memory is available with the installation of optional DDR SDRAM DIMM memory expansion kits.

Standard Memory Replaced with Optional Memory

Up to 16384 MB of DDR SDRAM DIMM memory is available with the removal of standard memory and the installation of optional SDRAM DDR DIMM memory expansion kits.

Memory		Slot							
		1	2	3	4	5	6	7	8
Standard	2 GB	512 MB	512 MB	Empty	Empty	512 MB	512 MB	Empty	Empty
Optional	10 GB	2048 MB	2048 MB	512 MB	512 MB	2048 MB	2048 MB	512 MB	512 MB
Maximum	16 GB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB

HP ProLiant xw25p Blade Workstation (390294-B21)

Standard Memory

4 GB PC3200 Registered DDR SDRAM DIMM installed (4 x 1024 MB SDRAM DIMM)

Standard Memory Plus Optional Memory

Up to 12 GB of DDR SDRAM DIMM memory is available with the installation of optional DDR SDRAM DIMM memory expansion kits.

Standard Memory Replaced with Optional Memory

Up to 16384 MB of DDR SDRAM DIMM memory is available with the removal of standard memory and the installation of optional SDRAM DDR DIMM memory expansion kits.

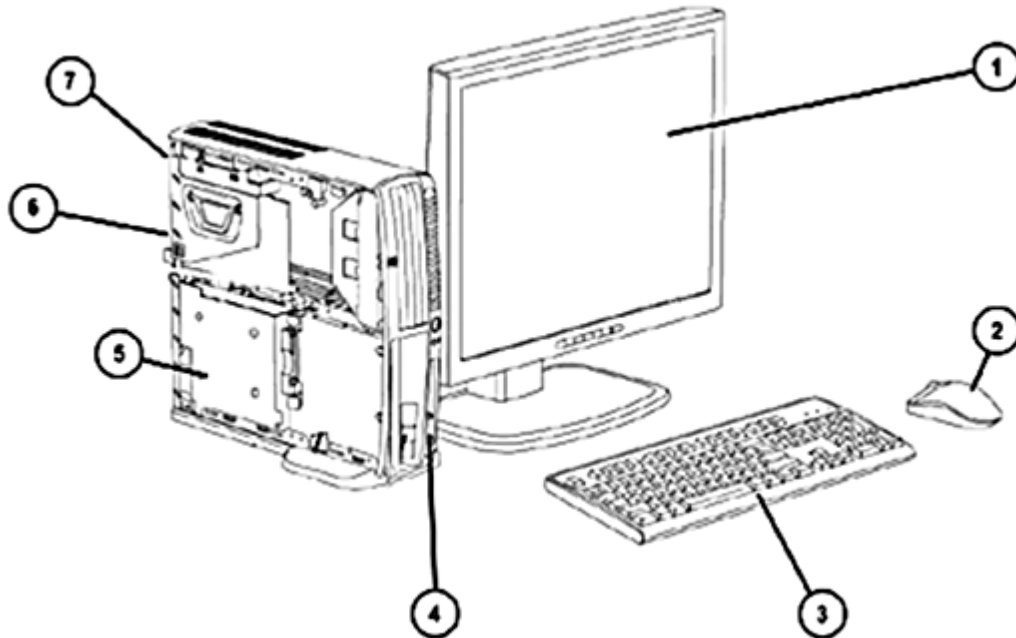
Memory		Slot							
		1	2	3	4	5	6	7	8
Standard	4 GB	1024 MB	1024 MB	Empty	Empty	1024 MB	1024 MB	Empty	Empty
Optional	12 GB	2048 MB	2048 MB	1024 MB	1024 MB	2048 MB	2048 MB	1024 MB	1024 MB
Maximum	16 GB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB

Following are memory options available from HP:

4096MB of Advanced ECC PC3200 DDR-400 SDRAM DIMM Memory Kit (2 x 2 GB)	379300-B21
2048MB of Advanced ECC PC3200 DDR SDRAM DIMM Memory Kit (2 x 1 GB)	376639-B21
1024MB of Advanced ECC PC3200 DDR SDRAM DIMM Memory Kit (2 x 512 MB)	376638-B21

Overview (HP Compaq Blade Workstation Client)

Small Form Factor



- | | |
|---|---|
| 1. Monitor (sold separately) | 5. 200-watt power supply |
| 2. 2-Button Scroll Mouse (PS/2) | 6. 1 full-height PCI slot (optional) |
| 3. 2004 Standard Keyboard (PS/2) | 7. Rear I/O: 6 USB 2.0, 1 optional DVI graphics port (available via DIV ADD2 adapter), 2 PS/2, 1 RJ-45, 1 VGA, audio in/out |
| 4. Front I/O: 2 USB 2.0, headphone and microphone | |

At A Glance

- HP Blade Workstation Client Embedded OS
- Intel Celeron D 336 processor
- Intel 945G Express chipset
- 512 MB DDR-2 533 MHz memory
- Integrated Broadcom NetXtreme Gigabit Ethernet
- NVIDIA Quadro 280 NVS (PCI & PCIe)
- Optimized thermal solution
- Tool-less chassis, with outstanding serviceability
- High Definition integrated audio with internal speaker
- Manageability tools included
- Protected by HP Services, including a 3-3-3 standard warranty. Terms and conditions vary by country. Certain restrictions and exclusions apply.

Standard Features (HP Compaq Blade Workstation Client)

Processor and Speed	Intel Celeron D Processors: One of the following
Operating System	HP Blade Workstation Client Embedded OS
Storage Drive	HP 512 MB Flash Memory Disk on Module
Memory	512 MB DDR-2 533 MHz Non ECC (1 x 512)
Keyboard	HP PS/2 2004 Standard Keyboard
Mouse	PS/2 2-Button Scroll Mouse
NIC	Broadcom NetXtreme Gigabit Ethernet integrated on system board
Graphics	NVIDIA Quadro NVS 280 64MB PCI dual display NVIDIA Quadro NVS 280 64MB PCI Express dual display

Options (HP Compaq Blade Workstation Client)

Input/Output Devices	Keyboards	
	HP PS/2 2004 Standard Keyboard	DT527A
	Pointing Devices	
	HP PS/2 2-Button Scroll Mouse (Carbonite)	DD440B
Monitors	TFTs	
	HP L1955 Flat Panel Monitor (19" analog/digital)	XXXXX
Brackets/Stand	Tower Stand SFF	XXXXX

System Details (HP Compaq Blade Workstation Client)

Unit Environment and Operating Conditions

General Unit Operating Guidelines

- Keep the computer away from excessive moisture, direct moisture and the extremes of heat and cold, to ensure that unit is operated within the specified operating range.
- Leave a 10.2 cm (4 in) clearance on all vented sides of the computer to permit the required airflow.
- Never restrict airflow into the computer by blocking any vents or air intakes.
- Do not stack computers on top of each other or place computers so near each other that they are subject to each other's re-circulated or preheated air.
- Occasionally clean the air vents on the front, back, and any other vented side of the computer. Lint, dust and other foreign matter can block the vents and limit the airflow.
- If the computer is to be operated within a separate enclosure, intake and exhaust ventilation must be provided on the enclosure, and the same operating guidelines listed above will still apply.

Temperature Range Operating Temperature: 50° to 95° F (10° to 35° C)
Non-operating Temperature: 22° to 140° F(30° to 60° C)

Relative Humidity Operating Humidity 10% to 90% (non condensing at ambient)
Non-operating Humidity 5% to 95% (non condensing at ambient)

Maximum Altitude Operating: 10,000 ft (3048 m)
(unpressurized) Non-operating: 30,000 ft (9144 m)

NOTE: Operating temperature is de-rated 1.0 deg C per 300 m (1000 ft) to 3000 m (10,000 ft) above sea level, no direct sustained sunlight. Maximum rate of change is 10 deg C/Hr. The upper limit may be limited by the type and number of options installed.

Interfaces	Serial Port	1 standard, 2nd via option
	Parallel Port	1
	PS/2	1 Keyboard and 1 Mouse
	USB (2.0)	8 ports (6 rear/2 front)
	RJ-45 10/100/1000 Network	yes
	Keyboard	yes (PS/2)
	Mouse	yes (PS/2)
	Multibay	none
	Video (VGA)	yes
	Audio	yes

System Details (HP Compaq Blade Workstation Client)

Power Supply	240 watt custom power supply - Active PFC
Operating Voltage Range	90 - 264 VAc
Rated Voltage Range	100 - 240 VAC
Rated Line Frequency	50/60 Hz
Operating Line Frequency Range	47 - 63 Hz
Rated Input Current	5A
Heat Dissipation	Typical 340 btu/hr (86 kg-cal/hr) Maximum 1260 btu/hr (318 kg-cal/hr)
Power Supply Fan	80mm variable speed

ROM Features	ROM Based F10 Setup	Review and customize BIOS settings
	Remote System Installation via F12 (PXE) (Remote Boot from Server)	Allows a new or existing system to boot over the network and download software, including the operating system
	System/Emergency ROM Flash Recovery with Video	Recovers corrupted system BIOS
	BIOS Smart Card Support	BIOS preboot smart card authentication (passwords) via USB CCID compliant smart card readers
	Serial, Parallel, USB, Network, Enable/Disable Port Control	Enable or disables serial, parallel, USB, and network ports
	Power-On Password	Prevents an unauthorized person from booting up the computer (enhanced to 32 characters case sensitive)
	Setup Password	Prevents an unauthorized person from changing the system configuration (enhanced to 32 characters case sensitive)
	Replicated Setup	Saves BIOS settings to USB disk-on-key in human readable file. Repset.exe utility can then replicate these settings on machines being deployed without entering ROM-based F10 setup
	No Fault Found (NFF) reduction for memory Setup browse mode	F10 setup option allows DIMM identification and failure analysis
	Default Setup	Allows option to be set where F10 settings are not visible when setup password is set
		Allows user to save custom F10 Setup settings as defaults. If CMOS settings are lost, such as during battery replacement, the user can restore the custom settings by selecting Apply Defaults and Exit. If desired, factory defaults can be restored through the same menu item.

System Details (HP Compaq Blade Workstation Client)

Software	Support Software CD	--
	Software Restore CD	Restores computer to its original factory shipping image
	Asset Tag	- Repository for storing company-specific property asset numbers for easy tracking - Initially set equal to the system serial number - Stored in a protected section of non-volatile memory that can be accessed and modified with the F10 Setup program
Security Features	Mechanical Hood Security Provision	Security Loop
	Kensington Lock Support	Kensington lock slot on the chassis
	Cable Lock Provision	Physically secure computer hardware from theft
	Serial, Parallel, USB Enable/Disable	Enable or disable serial, parallel or USB ports and hide them from the operating system
	Removable Media Write/Boot Control	Prevents the computer from being booted from removable media on supported devices (and can disable writes to media)
	Power-On Password	Prevents an unauthorized person from booting up the computer
	Setup Password	Prevents an unauthorized person from changing the system configuration
	Solenoid Hood Lock	Electronic hood lock controlled through F10 Setup
	HP Desktop Security Lock kit support	Protects PC from theft or tampering and includes master key
Fault Notification and Recovery	Surge Tolerant Full Ranging Power Supply	Withstands power surges up to 2000V
Serviceability Features of System	Diagnostic LED Explanation Table	Number of 1-second red LED blinks followed by 2-second pause, then repeats: 2-processor thermal protection activated 3-processor not installed 4-power supply failure 5-memory error 6-video error 7-PCA failure (ROM detected failure prior to video) 8-invalid ROM, bootblock recover mode
	System/Emergency ROM	Recovers corrupted system BIOS
	Restore CD	Restores the computer to its original factory shipping image

System Details (HP Compaq Blade Workstation Client)

Serviceability Features of Chassis	Front power switch
	Green Pull Tabs, and Quick Release Latches for easy Identification
	Color coordinated cables and connectors
	Tool-less Hood Removal Eases entry to the chassis without use of special tools
	Tool-less System Board Removal No special tools required for system board removal or maintenance

Service and Support	On-site Warranty and Service ¹ : This three-year (3-3-3), limited warranty and service offering delivers three years of parts, labor and on-site repair. Response time is next business-day ² and includes free telephone support ³ 24 x 7. Global coverage ² ensures that any product purchased in one country and transferred to another non-restricted country will remain fully covered under the original warranty and service offering. Some countries/regions do not offer one year onsite and labor.
	NOTE 1: Terms and conditions may vary by country. Certain restrictions and exclusions apply.
	NOTE 2: On-site service may be provided pursuant to a service contract between HP and an authorized HP third-party provider, and is not available in certain countries. Global service response times are based on commercially reasonable best effort and may vary by country.
	NOTE 3: Technical telephone support applies only to HP-configured, HP and HP-qualified, third-party hardware and software. Toll-free calling and 24 x 7 support may not be available in some countries.

Technical Specifications (HP Compaq Blade Workstation Client)

Operating System

Processor Intel Celeron D 236

CPU Bus Speed Supported 533 MHz

Standard L2 Cache 256 KB

Chipset Intel 945G Express

Maximum Memory 512 MB

Network controller Integrated Broadcom NetXtreme Gigabit Ethernet for HP

Graphics NVIDIA Quadro NVS 280 (PCI or PCIe)

Audio Integrated stereo audio
Internal Speaker

Ports	USB 2.0	8 (2 front, 6 rear)
	Serial	1 standard with 2nd optional
	Parallel	1
	PS/2	1 keyboard, 1 mouse
	Video	analog for integrated graphics
	Support for Multi-Monitor	Up to 4 displays
	Audio	Front - headphone Rear - line out
	NIC	Integrated Broadcom NetXtreme Gigabit Ethernet for HP
	Chassis Dimensions (H x W x D)	3.95 x 13.3 x 14.9 in (10.03 x 33.78 x 37.85 cm)
	System weight	19.5 lb (8.85 kg)
	System volume	12.8 liters
	Shipping weight	30 lb (13.61 kg)
Dimensions	Shipping box dimensions (H x W x D)	12.63 x 18.75 x 20 in (32.08 x 47.63 x 50.8 cm)
	Power Supply	240W power supply - Active PFC
Preinstalled Software	HP Blade Workstation Client Embedded OS	

Technical Specifications - Communications

Integrated Broadcom NetXtreme Gigabit Ethernet	Connector	RJ-45
	Controller	Broadcom 5751 PCI-Express LAN Controller
	Memory	Integrated 96Kb frame buffer memory
	Data rates supported	10/100/1000 Mbps
	Compliance	IEEE 802.1P, 802.1Q, 802.2, 802.3, 802.3AB and 802.3u compliant, 802.3x flow control
	Bus architecture	PCIe
	Data path width	Single channel, PCIe
	Data transfer mode	Bus-master DMA
	Hardware certifications	FCC, B, CE, TUV- cTUVus Mark Canada and United States, TUV- GS Mark for European Union
	Power requirement	3.1 watts @ +3.3V AUX supply with 5V tolerance
	Boot ROM support	Yes
	Network transfer rate	10BASE-T (half-duplex) 10 Mbps
		10BASE-T (full-duplex) 20 Mbps
		100BASE-TX (half-duplex) 100 Mbps
		100BASE-TX (full-duplex) 200 Mbps
		1000BASE-T (full-duplex) 2000 Mbps
	Environmental	Operating temperature 32° to 131°F (0° to 55° C)
		Operating humidity 85% at 131° F (55° C)
	Operating system driver support	HP Blade Workstation Client Embedded OS
	Management capabilities	PXE 2.0
	Alerting	N/A

Technical Specifications - Input/Output Devices

PS/2 2004 Standard Keyboard	Physical characteristics	Keys	104, 105, 106, 107, 109 layout (depending upon country)
		Dimensions (L x W x H)	18.0 x 6.4 x 0.98 in (45.8 x 16.3 x 2.5 cm)
	Electrical	Weight	2 lb (0.9 kg) minimum
		Operating voltage	+ 5VDC $\pm$ 5%
		Power consumption	50-mA maximum (with three LEDs ON)
		System interface	PS/2 6-pin mini din connector
		ESD	CE level 4, 15-kV air discharge
		EMI - RFI	Conforms to FCC rules for a Class B computing device
		Microsoft PC 99-2001	Functionally compliant
	Mechanical	Languages	38 available
		Keycaps	Low-profile design
		Switch actuation	55-g nominal peak force with tactile feedback
		Switch life	20 million keystrokes (using Hasco modified tester)
		Switch type	Contamination-resistant switch membrane
		Key-leveling mechanisms	For all double-wide and greater-length keys
		Cable length	6 ft (1.8 m)
	Environmental	Microsoft PC 99-2001	Mechanically compliant
		Acoustics	43-dBA maximum sound pressure level
		Operating temperature	50° to 122° F (10° to 50° C)
		Non-operating temperature	-22° to 140° F (-30° to 60° C)
		Operating humidity	10% to 90% (non-condensing at ambient)
		Non-operating humidity	20% to 80% (non-condensing at ambient)
		Operating shock	40 g, six surfaces
		Non-operating shock	80 g, six surfaces
		Operating vibration	2-g peak acceleration
		Non-operating vibration	4-g peak acceleration
		Drop (out of box)	26 in (66 cm) on carpet, six-drop sequence
	Approvals Ergonomic compliance Kit contents	Drop (in box)	42 in (107 cm) on concrete, 16-drop sequence
		UL, CSA, FCC, CE Mark, TUV, TUV GS, VCCI, BSMI, C-Tick, MIC	
		ANSI HFS 100, ISO 9241-4, and TUVGS	
		Keyboard, keyboard software media, installation guide, warranty card, safety and comfort guide	

Technical Specifications - Input/Output Devices

HP PS/2 Scroll Mouse	Dimensions	3.8 x 6.3 x 11.6 cm (1.5 x 2.5 x 4.6 in)
	Weight	4.44 oz (126 g)
Environmental	Operating temperature	50° to 122° F (10° to 50° C)
	Non-operating temperature	22° to 140° F (-30° to 60° C)
	Operating humidity	10% to 90% (non condensing at ambient)
	Non-operating humidity	20% to 80% (non condensing at ambient)
	Operating shock	40 g, 6 surfaces
	Non-operating shock	80 g, 6 surfaces
	Operating vibration	2 g peak acceleration
	Non-operating vibration	4 g peak acceleration
	Drop (out of box)	26 in (66 cm) on carpet, 6-drop sequence
	Drop (out of box)	1 m on asphalt tile over concrete, 6-drop sequence
	Electrical	
	Operating voltage	5 VDC $\pm$ 10%
	Power consumption	15 mA
	System consumption	PS/2 mini-din connector
Electrical	ESD	CE level 4, 15 kV air discharge
	EMI-RFI	Conforms to FCC rules for a Class B computing device
	Microsoft® PC99 - 2001	Functionally compliant
	Mechanical	
	Resolution	400 $\pm$ 20% DPI
	Tracking speed	10 in/s (25.4 cm/s) maximum
	Acceleration	100 in/s/s (2.54 m/s/s)
	Switch actuation	65 g nominal peak force
	Switch life	1,000,000 operations (using Hasco modified tester)
	Switch type	Low force micro-switches
	Tracking mechanism life	155 mi (250 km) at average speed of 10 in/s
	Cable length	6 ft (1.8 m)
	Microsoft PC99 - 2001	Mechanically compliant
Scroll wheel	Width	8 mm
	Diameter	.99 in (25.2 mm)
	Maximum rotation speed	30 mm/s
	Switch type	Light force micro-switch
	Switch life	1 million operations
	Mechanical life	Minimum 200,000 revolutions
	Regulatory approvals	
	Compliant	UL, CSA, FCC, CE Mark, TUV, TUV GS, VCCI, BSMI, C-Tick, MIC

Technical Specifications - Graphics

NVIDIA Quadro NVS 280 64 MB PCI Dual Head

Form Factor	Low profile (both ATX and low profile brackets included)																				
Graphic Controller	Integrated Quadro 280 2-D graphics processor unit (GPU)																				
Bus type	PCI or PCI Express																				
RAMDAC	Dual 350 MHz integrated																				
Memory	64 MB DDR with frame buffer and Texture storage																				
Connector	Single High-density DMS-59 Connector																				
Dimensions	Low-profile, 2.586 x 6.6 in (6.57 x 16.76 cm)																				
Controller clock speed	250 MHz																				
Color depth	32-bits/pixel max																				
Overlay planes	1 16-bit Video overlay plane																				
Maximum vertical refresh rate	85 Hz																				
Multi-monitor support	Dual analog or digital monitors																				
Dual DVI Support	Yes (with kit DL139A)																				
High-definition Video Processor (HDVP)	Full-screen, full-frame video playback of HDTV and DVD content DVD-ready motion compensation for MPEG-2 Independent hardware color controls for video overlay Hardware color-space conversion (YUV 4:2:2 and 4:2:0) IDCT motion compensation 5-tap horizontal by 3-tap vertical filtering 8:1 up/down scaling																				
Resolution	<table><tr><th>Analog/digital via molex connector Resolution</th><th>Maximum Refresh Rate</th></tr><tr><td>640 x 480*</td><td>240 Hz</td></tr><tr><td>800 x 600</td><td>240 Hz</td></tr><tr><td>1280 x 768</td><td>150 Hz</td></tr><tr><td>1280 x 1024</td><td>150 Hz</td></tr><tr><td>1600 x 1200</td><td>100 Hz</td></tr><tr><td>1920 x 1200*</td><td>85 Hz</td></tr><tr><td>1920 x 1200*</td><td>85 Hz</td></tr><tr><td>1920 x 1440*</td><td>75 Hz</td></tr><tr><td>2048 x 1536*</td><td>60 Hz</td></tr></table>	Analog/digital via molex connector Resolution	Maximum Refresh Rate	640 x 480*	240 Hz	800 x 600	240 Hz	1280 x 768	150 Hz	1280 x 1024	150 Hz	1600 x 1200	100 Hz	1920 x 1200*	85 Hz	1920 x 1200*	85 Hz	1920 x 1440*	75 Hz	2048 x 1536*	60 Hz
Analog/digital via molex connector Resolution	Maximum Refresh Rate																				
640 x 480*	240 Hz																				
800 x 600	240 Hz																				
1280 x 768	150 Hz																				
1280 x 1024	150 Hz																				
1600 x 1200	100 Hz																				
1920 x 1200*	85 Hz																				
1920 x 1200*	85 Hz																				
1920 x 1440*	75 Hz																				
2048 x 1536*	60 Hz																				

NOTE: Resolutions marked with a * are not directly available in the 'monitor configuration' section of the HP Compaq Blade Workstation Client Webmin GUI but they can be added if the administrator manually modifies the xorg.conf file.

Technical Specifications - Graphics

NVIDIA Quadro NVS 280 64 MB PCI Express Dual Head	Form Factor	Low profile, both ATX and low profile brackets included
	Graphic Controller	Integrated Quadro 280 2-D graphics processor unit (GPU)
	Bus type	PCI-Express x16
	RAMDAC	Dual 350 MHz integrated
	Memory	64 MB DDR SDRAM unified frame buffer, Z-buffer and Texture storage
	Connector	Single High-density DMS-59 Flex Connector
	Multi-monitor support	Dual integrated analog display controllers supporting up to two analog displays at 2048x1536 @ 60Hz or two digital displays at 1600x1200 @ 60Hz
	Additional product features	Controller clock speed 250 MHz Color planes 32-bit color buffer Overlay planes 1 16-bit Video overlay plane Maximum vertical refresh rate 85 Hz Dual DVI Support Yes (with kit DL139A) High-definition Video Processor (HDVP) Full-screen, full-frame video playback of HDTV and DVD content DVD-ready motion compensation for MPEG-2 Independent hardware color controls for video overlay Hardware color-space conversion (YUV 4:2:2 and 4:2:0) IDCT motion compensation 5-tap horizontal by 3-tap vertical filtering 8:1 up/down scaling
	PCI Express	Supports X16 PCIe
	Available graphics drivers	Microsoft Windows® XP HP qualified drivers may be preloaded or available from the HP support Web site: http://welcome.hp.com/country/us/eng/software_drivers.html .

NVIDIA Quadro NVS 280 PCe Graphics Controller display resolutions & refresh rates

Analog/digital via molex connector Resolution	Maximum Refresh Rate
640 x 480*	240 Hz
800 x 600	240 Hz
1024 x 768*	240 Hz
1152 x 864*	170 Hz
1280 x 768	150 Hz
1280 x 1024	150 Hz
1600 x 1200	100 Hz
1920 x 1080*	85 Hz
1920 x 1200*	85 Hz
1920 x 1440*	75 Hz
2048 x 1536*	60 Hz

NOTE: Resolutions marked with a * are not directly available in the 'monitor configuration' section of the HP Compaq Blade Workstation Client Webmin GUI but they can be added if the administrator manually modifies the xorg.conf file.

Technical Specifications - Graphics

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